December 26, 2001

U.S. Department of Transportation
Dockets Management Facility
Room PL-401
400 Seventh Street, SW
Washington, DC 20590

In response to the Federal Highway Administration's advance notice of proposed rule making as published in the Federal Register, Vol. 66, No. 187, Wednesday, September 26, 2001, MassHighway is pleased to provide its comments for the following docket number:

FHWA Docket No. FHWA-2001-8954
National Bridge Inspection Standards

Our comments are provided as separate attachment below. We appreciate this opportunity to provide input into the rule making process. Our comments and recommendations are based on the experience we have had in working with these regulations over the years and on what we perceive to be beneficial changes. We trust that our comments will receive due consideration as this process continues.

Sincerely,

Thomas F. Broderick, P.E.
Chief Engineer

FHWA Docket No. FHWA-2001-8954
RIN 2125-AE86
Federal Highway Administration
23 CFR Part 650
National Bridge Inspection Standards

Comments from the Massachusetts Highway Department (MassHighway) on advance notice of proposed rulemaking:

Application of Standards:

We feel that there is no need for FHWA to develop its own definition of a bridge, since the one used currently (the AASHTO definition) adequately defines what a bridge is. The only thing that we feel FHWA needs to do is to clarify that the NBIS apply only to those bridges that carry vehicular highway traffic. Since the AASHTO definition is broad, it lists non-highway traffic, such as rail and pedestrian.

There is no need to change the way a bridge length is determined, however decreasing the minimum length will increase the number of bridges that must be inspected, create more paperwork by increasing the number of inspection reports produced, and will require more staff or consultants to perform these inspections.

For example, in Massachusetts, if the minimum bridge length were reduced to 3 meters (10 feet), it would result in a 37% increase in the number of bridges that would fall under NBIS. Even though these bridges are small, they would still require approximately one day to inspect, taking into consideration travel time and report preparation. As a result, we would need at least a similar increase in MassHighway staff or consultants to adequately inspect these additional bridges. Furthermore, unless there was an increase of HBRRP funds apportioned to states, the inclusion of all these additional bridges under NBIS would create a greater strain on local authorities to stretch existing funds among all of the deficient bridges that would now be competing for them.

Inspection Procedures

As far as MassHighway is concerned, there would be no significant impact on our operations if the underwater inspection frequency were to be increased. MassHighway parameters for establishing any inspection frequency are more rigorous than what is allowed under NBIS and are tied to the condition of the element being inspected. Therefore, we would still continue to inspect bridges, both underwater and above water, according to our own standards.

As far as scour is concerned, we would welcome additional guidance on scour evaluation of bridges after a flood event. Currently, MassHighway performs a visual dive evaluation of all bridges along waterways that experienced flooding to check for scour. However, we do not have

any written procedures or standards on how to do these inspections and they in large part depend on the knowledge and experience of our Underwater Operations Engineer.

In addition, MassHighway considers that greater emphasis should be placed on scour (Item 113) in the calculation of the Sufficiency Rating and in determining the eligibility of bridges for scour repairs and countermeasures. Currently federal regulations allow the use of HBRRP funds for scour repairs and countermeasures, but only if the bridge is itself eligible for HBRRP funds. Since Item 113 does not impact the Sufficiency Rating, a bridge that has measurable scour but is in otherwise good condition would not be eligible for federal funds because of a high Sufficiency Rating. As a result, scour only repairs for these bridges must compete for state only dollars with other work that is not eligible for HBRRP funds.

Frequency of Inspections

MassHighway has reviewed the possibility of performing some inspections at longer intervals with our FHWA Division office, however, we found that the number of bridges that would qualify for this inspection waiver was so small that there would be no tangible benefit in obtaining this waiver. Based on this evaluation, MassHighway decided not to pursue such a request. For this reason, we see no benefit in increasing the waiver frequency beyond 4 years if there is no comparable relaxation in the FHWA guidelines on which structures would be eligible.

On the other hand, if regulations allowed any bridge that was in "Good" condition or better (Condition Rating of 7 or above for all primary bridge components) to be inspected at a frequency of 4 years, this would mean that 37% of bridges that MassHighway inspects would be eligible for such a waiver. This would result in a considerable reduction in the annual inspection workload.

For these reasons, MassHighway is in favor of extending the inspection cycle provided that the FHWA criteria are relaxed. We further believe that if the guidelines for such an extension are tied into the condition rating of the primary components of the bridge, as we outlined above, the safety of bridges will not be compromised.

Qualifications of Personnel

Even though it was not included in the current proposed rule making, MassHighway strongly recommends that FHWA consider removing the qualification requirement of "…be qualified for registration as a PE…" because it is ambiguous and has led to different interpretations. A more definitive qualification requirement would be to use the EIT certification, since there is no interpretation required - either you have it or you don't. We will provide more comments on the use of the EIT below. Also, MassHighway feels that there is a need to establish minimum requirements for team members.

Concerning the specific proposal for bridge inspection experience for PE and restricting eligible PE disciplines to civil or structural engineering, MassHighway supports these changes.

MassHighway believes that bridge inspection experience is needed to properly inspect and code bridges in accordance with standard bridge inspection practice, as outlined in the Inspector 90 Manual and the FHWA coding guide. Since these qualifications are essentially for personnel in supervisory levels of a bridge inspection organization, knowledge of bridge inspection practice is vital for the effective execution of their duties. Merely possessing a PE does not automatically give a person this knowledge, which can only come from hands on experience in bridge inspection.

Also, we agree that civil or structural engineers are more appropriately suited to understanding structural bridge issues than mechanical or electrical engineers, and for this reason we support limiting eligible PE's to the practitioners of civil or structural engineering in the qualifications. Since all PE's doing bridge inspection work for MassHighway are practitioners of those disciplines, this proposed rule making would not have any impact on our operations.

As mentioned above, MassHighway supports the incorporation of the EIT certification into the qualifications of team leaders under the NBIS. EIT certification denotes a certain level of technical knowledge and expertise and is usually attained by new college engineering graduates. Using the EIT certification as a qualification under NBIS would have the beneficial effect of encouraging more college graduates to enter bridge inspection, and, through this, of increasing the technical knowledge and expertise of the bridge inspection organization.

MassHighway considers that it would make sense to modify the NBIS so that a person with an EIT and 2 years of bridge inspection experience would be qualified to be a team leader and a person with an EIT and 5 years of bridge inspection experience would be qualified to be in charge of a unit responsible for the inventory and reporting of inspection findings.

MassHighway considers "in a responsible capacity" to mean that someone has been assigned full time to the bridge inspection unit and is actively involved in performing bridge inspection assignments, such as inspecting bridges, taking measurements and readings of deterioration, etc., preparation of inspection reports, coding SI&A's.

Concerning the proposed ruling regarding different certifications for structures of different complexities, MassHighway is not clear on what is meant by "the complexity of the structure". Just because a structure is large and contains many elements it does not necessarily require a different level of expertise to inspect, especially if it is composed of members that can be inspected in accordance with the procedures outlined in the Inspector 90 Manual. Large and complex structures may have different accessibility issues, such as confined space entry or rigging/free climbing, however, these issues do not influence the basic methods used in the inspection itself. MassHighway considers all of our in-house bridge inspectors equally capable of inspecting any bridge in the Massachusetts inventory

MassHighway does agree that bridges which cannot be inspected using standard visual procedures of the Inspector 90 Manual, but which require special procedures, instruments or other NDT methods, should be considered as differing in complexity and should require specialized personnel to properly inspect them.

MassHighway agrees that qualifications should be established for underwater inspectors and would welcome the establishment of such criteria. Currently, we use the same qualification requirements for underwater inspection team leaders as required by NBIS for above water bridge inspection team leaders. MassHighway considers that these requirements would be adequate and acceptable for underwater inspection team leaders if established on a national basis. In addition, since MassHighway performs all of its underwater inspections with our in-house dive team, all members of the MassHighway dive team must go through our own in-house dive training program. Consideration should be given to the establishment of dive certification requirements as part of the requirements for an underwater inspection team.

Inspection Report

MassHighway agrees with the proposed ruling that only the inspector who was in the field be permitted to change the inspection report. MassHighway currently practices this as well. The inspection team leader is responsible for the accuracy of the report and of all of the findings noted therein and he/she signs the report. No one else can change or alter the description of the actual field findings other than the inspection team leader. Supervisors can make minor changes, which do not alter the facts stated in the report, but these must be clearly identified and must be initialed by the person making these changes.

Inventory

MassHighway concurs that the procedures for bridge inventory are adequate and do not require any changes in the reporting requirements or procedures. MassHighway has had recommendations for improving the Recording and Coding Guide, and these have been provided to FHWA when they have solicited comments in that regard.

Additional General Questions

1. MassHighway considers that the current regulation as outlined in 23 CFR Part 650 subpart C effectively addresses the requirements of 23 U.S.C. 151, national bridge inspection program.

2. MassHighway would like a better definition of what is meant by "unique or special feature". The NBIS requires that master lists of such structures be kept, however this is difficult to do if it is not clear what falls under this definition. Similarly, MassHighway would like to see procedures and manuals established for the inspection of segmental, cable-stayed and suspension bridges as well as procedures for underwater inspection of bridges and the creation of a diver's manual, similar to the Inspector 90 manual.

3. MassHighway does not have any other recommendations to improve the NIBS outside of those that have already been mentioned. We consider that NBIS so far has been an effective set of regulations, which has accomplished what it was originally intended to

do. However, in order for NBIS to remain effective, it will need to be reviewed on a regular basis and be updated to include and address the inspection requirements for the new structure types that are being developed and constructed on the one hand, and new inspection and NDT technologies on the other. We consider the proposed rule changes under discussion now to be a step in this direction.